

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION III

841 Chestnut Building
Philadelphia, Pennsylvania 19107

SUBJECT: Tyson's Dump Site

DATE: SEP 18 '85

FROM: Libby Rhoads
NEPA Compliance Section (3PM71)

TO: Joe Dugandzic
Site Response Section (3HW21)

As a follow-up to your meeting on 9/9/85 with FWS and EPA staff, I wanted to reiterate my comments on the sampling proposals in my 9/9/85 memo. I have, therefore, excerpted and summarized my recommendations and listed them below.

1. Field Reconnaissance - A field recon is necessary and the level of detail proposed by ERM would probably be sufficient.

2. Bioassays - At a minimum, one chronic bioassay should be done on the upgraded air stripper effluent. My additional comments were in response to Baker's proposed sampling sites and methodology.

3. Soil Samples - "...Therefore, I do not think that additional soil samples are essential. ...the additional 5 pond samples are not necessary."

4. SG/RE vs. Bioaccumulation - Plant and animal samples should be taken instead of SG/RE tests. This sampling is applicable only if an indicator compound bioaccumulates. If there are bioaccumulating compounds, then three sample types were recommended: freshwater clams, plants, and a resident carnivore.

It is my understanding that the following sampling proposal was developed at the meeting: 1) a field recon, 2) two bioassays, 3) one background soil sample, and 4) if compounds are bioaccumulative, then plant and animal samples will be taken.

In talking with Ed Shoener, he indicated that there may be difficulties in finding a lab to do these analyses. If I can provide assistance in locating methods or a lab, please let me know.

cc: E. Shoener (3HW21)

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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841 Chestnut Building
Philadelphia, Pennsylvania 19107

28 SEP 1985

Karline K. Tierney, Manager
CERCLA Compliance
Ciba-Geigy Corporation
Ardley, New York 10502

Dear Ms. Tierney:

As I had informed you at our last meeting on September 5, 1985, EPA and Ciba-Geigy appeared to be in reasonable agreement on the scope of work to be performed in four of the five Operable Units at the Tyson's Dump Site, however the fifth Unit, "Floodplain/Wetlands" was still under evaluation by EPA. Since that time, I have met with personnel with EPA's Environmental Impact and Marine Policy Branch and also the U.S. Fish and Wildlife Service to discuss a reasonable approach in assessing contamination in the Floodplain/Wetland Area. As a result of these meetings, EPA is proposing that the following work be performed on the Floodplain/Wetlands Area:

A. Field Reconnaissance - The field reconnaissance should be sufficiently comprehensive to delineate the wetlands boundaries. To this end the ERM proposal appears adequate.

B. Sediment Samples - Composite sediment samples will be collected at the (area 1) outfall of the air stripper effluent and (area 2) westernly swamp area (see attached map). Analysis of these samples are to include both acute and chronic bioassays, as well as a complete scan for the EPA Hazardous Substances List (HSL). The bioassays should be performed by standards which include a seven day chronic growth test and a life cycle test. Both acute and chronic bioassays will provide LC_{50} , however the 7-day chronic growth test on Pimephales promelas should be used to assess the potential of long term toxicity. Because of its sensitivity, it is recommended that the 7-day life cycle tests on Ceriodaphnia sp. also be used.

The sampling strategy in this Study Area during EPA's Remedial Investigation concentrated on areas that appeared to be most likely affected by runoff from the leachate collection system as well as areas affected by surface drainage patterns. Because of this strategy, a representative sample of background soil was never determined. Therefore, in order to assess what might typically exemplify the native soil in this area a composite soil sample will be collected in the background area (area 3) and analyzed for the HSL.

C. Determination of the Environmental Mobility Parameters of Organic Chemicals - As a precursor to bioaccumulation studies a critical evaluation of the mobility and migration potential for organic contaminants in sediments detected in the Study Area will be performed. Log Soil/Sediment Adsorption Coefficients ($\log K_{oc}$) will be calculated for each organic contaminant found from the sediment analysis and also for each organic contaminant found during EPA's Remedial Investigation. Adsorption partition coefficients can be thought of

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as the ratio of the amount of chemical adsorbed per unit weight of organic carbon in the soil or sediment to the concentration of the chemical dissolved in solution at equilibrium. When laboratory observed K_{OC} values are not available, they can be calculated from linear regression equations using octanol-water coefficients (K_{OW}). K_{OW} is defined as the ratio of a chemical's concentration in the octanol phase to its concentration in the aqueous phase. K_{OC} is commonly used in river models, runoff models, and soil/groundwater models where the transport of a specific chemical is being investigated. Chemicals with relatively high soil coefficients are generally immobile in the hydrosphere, but this same tendency makes them mobile with respect to surface water convection (erosion of contaminated soil or sediment particles); (Lyman, Handbook of Chemical Estimation Methods).

K_{OW} represent the tendency of the chemical to partition itself between an organic phase (e.g. a fish, a soil) and an aqueous phase. Chemicals with low K_{OW} (e.g. less than 10) may be considered relatively hydrophilic; they tend to have high water solubilities, small sediment/soil adsorption coefficients and small bioconcentration factors for aquatic life. Conversely, chemicals with high K_{OW} values (e.g. greater than 10^4) are very hydrophobic. Such compounds may be expected to adsorb relatively highly to organic soils and exhibit bioaccumulation tendencies, as well as low water solubilities.

4. Bioaccumulation Studies - EPA's primary concern from this area is the potential for human impact. Based on calculations determining the potential mobility and bioaccumulation tendency of contaminants found in the Study Area bioaccumulation studies will be performed on indicator compounds found to bioaccumulate. If hazardous compounds are found to be bioaccumulative then plant and animal samples will be taken in the Study Area to determine whether contaminants have entered the foodchain. To identify these potential impacts EPA recommends the following types of samples be taken in this Study Area:

Plant - Preferably Carex sp. taken in the swamp area, near the tributary receiving stripper effluent and a background sample away from the Study Area.

Animal - Samples taken from resident carnivores at one location in the Study Area and from one background location. Suggested species are either the snapping turtle or shrew. FWS routinely analyzes animal tissues (e.g. snapping turtles at Tinicum Marsh) and should be contacted for guidance on sampling and analytical methodology.

Freshwater clams should be taken at locations upstream and downstream of the Study Area. Analysis of these clams (*Corbicula* sp.) should include target compounds found from sediment analysis. At the present time, Radiation Management Corporation (RMC), Environmental Services Division Pottstown, PA., is conducting studies of the *Corbicula* clam in the general vicinity of the Tyson's Study Area. Mr. Robbie Blye of RMC could be contacted to assist in these studies.

When you have completed your RI/FS Work Plan for the Operable Units I would appreciate if you could forward me a copy for review and comment. In the interim, if you have any immediate questions regarding EPA's scope of work for the Floodplain/ Wetlands please feel free to give me a call.

Sincerely,



Tim Travers
Compliance Officer (3HW12)

cc: ERM, West Chester, PA.
Joe Donovan, EPA
Joe Dugandzic, EPA

AR306204

Recommended Sampling Area

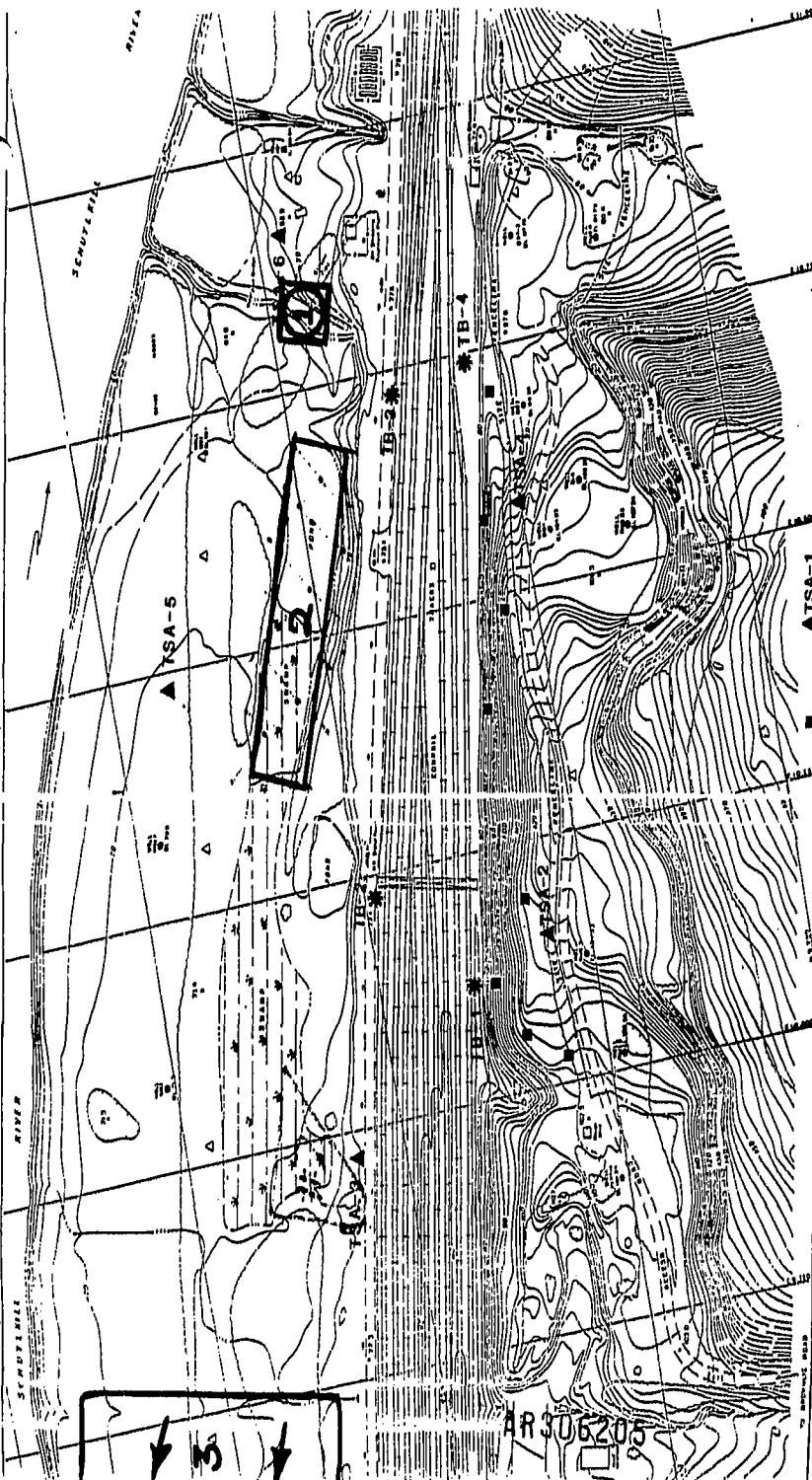


FIGURE 1: OPERABLE UNITS STUDY
LOCATION MAP FOR ADDITIONAL
SAMPLING ACTIVITIES



TYSON'S DUMP SITE
UPPER MERION TOWNSHIP
MONROE COUNTY, PENNSYLVANIA
BAKER / ISA
DIVISION OF MICHAEL BAKER CORPORATION
CUTCHINGHAM, PENNSYLVANIA

DATE: 10/1/88
BY: [Signature]
CHECKED: [Signature]
APPROVED: [Signature]

along EPA/AST monitoring well
along RI monitoring well
along Multi-Level Monitoring Well
along Test Boring Location
along Surface Soil Sample Location

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